Referring next to FIG. 6, a diagram of a traffic burst format used in the air interface frame format of FIG. 5 is shown including a split preamble feature. The traffic burst 600 includes: a preamble 602 containing guard 607, ramp 608, first unique word 610, second unique word 611, a first data/spare section 612, and a second data/spare section 614; data section 604; and a parity 606. Also shown is the preamble split length 613.

A1

Please replace the paragraph beginning at page 37, line 27, with the following:

The preamble 602 of the traffic burst 600 contains entirely known sections including the guard 607, and ramp 608. However, the preamble 602 is unique in that instead of one unique word that would be used in a prior art preamble, the preamble is a "split preamble" in which the unique word is divided into a first unique word 610 and a second unique word 611. The first unique word 610 and the second unique word 611 are separated by the first data/spare section 612.

A2

Please replace the paragraph beginning at page 53, line 28, with the following:

The modulation selector unit 1114 is the component of the multi-modulation modem 1100 that enables the multiple modulations to be used. The symbol-to-byte converter 1166, which is coupled to the burst formatter 1118. The byte-to-symbol converter 1166 is programmable and converts the bytes to modulation symbols needed for the particular modulation each burst will be modulated with (e.g. QPSK, 16-QAM, and 64-QAM). The burst formatter 1118 is coupled to the constellation lookup 1120. The burst formatter 1118 formats the

A3

symbols to a burst type, such as a quad burst or a single burst as discussed in FIGS. 7A and 7B. A preamble and post-amble can be appended to the burst by the burst formatter 1118 as well. The constellation lookup 1120 is programmable and formats the burst according to one of the three constellations it is configured for: 4 (QPSK), 16 (16-QAM), or 64 (64-QAM). The constellations are programmable and are not limited to square constellations. Constellations such as multi-level circular 64 point constellations may be used. Thus, advantageously, the modulation selector unit 1114 can format the bursts using a plurality of modulations on a burst-by-burst basis. This represents an improvement over the prior art modems which only modulate using one modulation.

Please replace the paragraph beginning at page 64, line 20, with the following:

Each hub terminal 1302 (sector radio) includes a main outdoor unit 1304 having an antenna 1306 coupled to a main indoor unit 1314 via an intrafacility link 1312 (IFL). Also shown are the backup outdoor unit 1308 having an antenna 1310 coupled to the backup indoor unit 1316 via an intrafacility link 1312. The backup indoor unit 1316 (IDU) has the same connections as the main IDU 1314; thus, only the main indoor unit 1314 will be discussed. Each main indoor unit 1314 has one DS3 line 1324 to the TDM Multiplexer 1318 and one OC3c line 1326 to the ATM Multiplexer 1320. The TDM Multiplexer 1318 and the ATM Multiplexer 1320 each have backhaul lines 1332 allowing connection to a transport network (not shown). Each main indoor unit 1314 of each hub terminal 1302 is coupled to the LAN hub 1328 and the

timing source 1322. The timing source 1322 sends the timing reference signal 1334 to each hub terminal 1302. The LAN router 1328 has an optional WAN line 1330 to the EMS.

Please replace the paragraph beginning at page 77, line 33, with the following:

The multi-transport mode cell bus 1100 also operates at a fixed frequency that matches the air interface symbol rate. For example, if the air interface operates at a symbol rate of 10 Msps, then the multi-transport mode cell bus 1510 operates at 10 Mbps. At the hub terminal, the timing for the multi-transport mode cell bus 1510 is derived from a timing reference or link to the transport network as described in FIG. 13. At the remote terminal, the timing for the multi-transport cell bus 1510 is derived from the signaling sent from hub terminal. The CB-Data section 1518 comprises fixed length data timeslots 1526. Advantageously, the data timeslots 1526 are configured such that they may carry both specially formatted TDM cells and ATM cells, which are described in FIGS. 28 and 29, on the same bus frame format 1512. Again, this is a departure from the prior art wherein separate bus frame formats are used for ATM and TDM transport. The structure of the IM-Com cells that fit within each message timeslot 1528 of the IM-Com section 1516 and the structure of the CB-Data cells that fit within each data timeslot 1526 of the CB-Data section 1518 are discussed with reference to FIGS. 16 and 17, respectively. Thus, as will be described in FIGS. 16 and 17, the CB-Data cells that fit within the data timeslots 1526 of the CB-Data section 1518 are designed to carry either ATM cells or specially designed TDM cells.

Please replace the paragraph beginning at page 106, line 16, with the following:

Referring next to FIG. 25A and 25B, a block diagram is shown for a multi-transport mode SSI module that is used in the remote terminal shown in FIG. 2. The multi-transport mode SSI module 2500 handles both synchronous traffic (TDM) and asynchronous traffic (ATM) and contains the multi-transport mode cell bus 2502, TDM cell formatter 2504 (TDM signal formatter), ATM cell formatter 2506 (ATM signal formatter), message buffer 2508, ATM timeplan and filter memory 2510, receive buffer 2512, transmit buffer 2514, PCM buffer controller 2516, PCM serial bus 2518, first utopia I bus 2520, second utopia I bus 2521, input/output (IO) bus 2522, AAL5 SAR 2524, AAL5 buffer 2526, AAL1 SAR 2528, AAL1 buffer 2530, central processing unit (CPU) 2532, PCI bridge 2538, PCI bus 2540, high-level data link control (HDLC) controller 2542, ROM bus 2544, Frame Relay serial bus 2546, CES serial bus 2548, LAN controller 2550 (shown in FIG. 25B for multi-transport mode SSI module 2501), timing multiplexer 2552 , T1/E1 framers 2554.

Please replace the paragraph beginning at page 119, line 9, with the following:

Referring next to FIG. 28, a block diagram is shown for an Asynchronous Transfer Mode (ATM) cell 2800 used in the point to multipoint system of FIG. 2. The ATM cell 2800 is a standard cell known in the art and has a header section 2802 and a data section 2804. The header section 2802 contains a virtual path identifier (VPI) 2806, a virtual channel identifier (VCI) 2808, and other header fields 2810. The standard ATM cell 2800 is 53 bytes in length. The header section 2802 is five bytes and the data section 2804 is 48 bytes. The header section

carries standard information, such as the VPI, VCI and other headers known in the art. The VPI 2806 is 8 bits and identifies the virtual path and the VCI 2808 is 16 bits and identifies the virtual channel. The VPI and VCI are inserted at the ATM formatter of the ATM-based SSI modules at the hub terminal so that the ATM-based SSI modules of the remote terminal can retrieve the proper ATM cells.

Please replace the paragraph beginning at page 119, line 27, with the following:

Referring next to FIG. 29, a block diagram is shown for a time-division-multiplexed cell (hereinafter referred to as a TDM cell 2900) used in one embodiment of the point to multipoint system. The TDM cell 2900 has a data section 2904 and a header section 2902 containing a virtual path identifier (VPI) 2906, and other headers 2908. Note that the TDM cell 2900 can also be referred to as a TDM packet; however, the specification refers to it as a TDM cell since it is being modeled after an ATM cell. Additionally, the ATM cells 2800 and TDM cells 2900 can be referred to generically as ATM signals and TDM signals.

Please replace the paragraph beginning at page 121, line 19, with the following:

Referring next to FIG. 30, a block diagram is shown for an ATM address filtering function that is performed at every ATM-based SSI module, such as shown in FIGS. 20, 22, 25A and 25B at the remote terminals. Corresponding steps from FIGS. 31A and 31B, which illustrate the steps performed in the ATM address filtering techniques at the ATM-based SSI modules, will be referred to while referring to FIG. 30. The ATM address filtering diagram 300 shows a

multi-transport mode cell bus 3002, ATM formatter 3004 (or ATM signal formatter) containing a VPI compare 3006, an optional VPI lookup table 3007 and optional VPI accept/discard bit 3009 (for the ATM-OC3c SSI module of FIG. 22), buffer 3008 containing a VCI lookup table 3010, Utopia bus 3012, and a TDM cell formatter 3022 (or TDM signal formatter). The VCI lookup table 3010 has an VCI accept/discard bit 3016, AAL1/AAL5 bit 3018, and a second 8 bit portion 3020. The VPI compare 3006 includes the extracted VPI 3024, a register 3026, and a comparator 3028. Also shown are an AAL1 SAR 3013 and an AAL5 SAR 3014.

A9

Please replace the paragraph beginning at page 122, line 3, with the following:

The multi-transport mode cell bus 3002 is coupled to the ATM formatter 3004 and the TDM cell formatter 3022. The ATM formatter 3004 contains the VPI compare 3006 and the optional VPI lookup table 3007. The ATM formatter 3004 is coupled to the buffer 3008, Utopia bus 3012. The buffer 3008 contains the VCI lookup table 3010. The ATM formatter 3004 and the TDM cell formatter 3014 are both custom logic devices.

A10

IN THE CLAIMS:

Please amend claims 1-3, 5, 8, 12, 24, 26, 35, 38, and 39 as follows:

A11

1. (Amended) A multi-modulation mode air interface frame format comprising:

an overhead portion including a first plurality of time slots;

a plurality of overhead bursts located within respective ones of the first plurality of time slots;

SUB B1

SUBB1 A11

a traffic portion including a second plurality of time slots following the first plurality of time slots; and

a plurality of traffic bursts, wherein ones of the plurality of traffic bursts are located within one or more of the second plurality of time slots, wherein each of the plurality of traffic bursts are modulated using one of a plurality of modulation modes.

2. (Amended) The frame format of Claim 1 wherein said plurality of overhead bursts are modulated using only one of said plurality of modulation modes.

3. (Amended) The frame format of Claim 2 wherein said plurality of overhead bursts are modulated using quadrature phase shift keying.

SUBB1 A12

5. (Amended) The frame format of Claim 4 wherein durations of ones of said plurality of traffic bursts, comprising ones of said plurality of burst types, are multiples of each other.

SUBB1 A13

8. (Amended) The frame format of Claim 1 wherein ones of said plurality of traffic bursts using ones of said plurality of modulation modes have durations that are multiples of durations of one or more of other ones of said plurality of traffic bursts using other ones of said plurality of modulation modes.

SUBB1 A14

12. (Amended) The frame format of Claim 1 wherein durations of ones of said plurality of traffic bursts using said respective ones of said plurality of modulation modes are respective multiples of the duration of a traffic burst modulated by a highest order modulation mode of said plurality of modulation modes.

SUBB1 A15

24. (Amended) A method of transmitting bursts over an air interface comprising:

creating a multi-modulation air interface frame format comprising a plurality of overhead time slots for containing overhead bursts and a plurality of traffic time slots for containing traffic bursts;

formatting traffic signals into the traffic bursts within the multi-modulation air interface frame format;

modulating each of the traffic bursts using a respective one of a plurality of modulation modes on a burst by burst basis; and

transmitting the traffic bursts on the multi-modulation air interface frame format over the air interface.

SUBB1 A16

26. (Amended) The method of Claim 24 further comprising:

formatting overhead signals into the overhead bursts within said multi-modulation air interface frame format; and

modulating the overhead bursts on said multi-modulation air interface frame format using only one of said plurality of modulation modes.

A17
SUBB1

35. (Amended) A method of transmitting bursts over an air interface comprising:

creating a multi-transport mode air interface frame format having a plurality of first time slots for containing overhead bursts and a plurality of second time slots for containing traffic bursts;

formatting traffic signals into the traffic bursts within the multi-transport mode air interface frame format, wherein the traffic signals comprise a plurality of transport mode traffic signals;

modulating each of the traffic bursts; and

transmitting the traffic bursts on the multi-transport mode air interface frame format over the air interface.

SUBB3
A18

38. (Amended) A method of formatting traffic bursts for an air interface frame format comprising:

formatting signals into overhead bursts and traffic bursts;

modulating the traffic bursts using one of a plurality of modulation modes;

inserting the overhead bursts into first time slots on an air interface frame format; and

inserting the traffic bursts into second time slots on the air interface frame format, wherein the traffic bursts modulated with respective ones of the plurality of modulation modes comprise a different number of the second time slots on the air interface frame format.